

In addition, the present invention is not limited to the embodiments described above, and it can be changed appropriately in the scope of technology concept of the present invention.

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1 **What is claimed is:**

- 2 1. A manufacturing method of an active matrix  
3 substrate comprising the steps of:  
4 a film lamination step for depositing a plurality  
5 of films to form laminated films on an insulating  
6 substrate;  
7 a resist pattern formation step for forming a  
8 resist pattern having a plurality of film  
9 thicknesses on said laminated films;  
10 a first etching step for etching said laminated  
11 films using said resist pattern as a first etching  
12 mask;  
13 a resist etching step for etching said resist  
14 pattern to remove a thinner portion of said resist  
15 pattern ; and  
16 a second etching step for etching said laminated  
17 films using a remaining portion of said resist  
18 pattern left after said resist etching process as a  
19 second etching mask.  
20 2. The manufacturing method of an active matrix  
21 substrate according to claim 1, further comprising  
22 a step of forming a first conductive film pattern  
23 on said insulating substrate before said film

24 lamination step in which an insulation layer, a  
25 semiconductor film, an ohmic semiconductor film and  
26 a second conductive film are deposited in order  
27 covering said first conductive film pattern to form  
28 said laminated films, wherein said resist pattern is  
29 formed so as to have a first portion of said resist  
30 pattern thicker than a second portion and said  
31 second portion of said resist pattern with an  
32 opening therein, at least top two films of said  
33 laminated films in said opening are etched and  
34 removed in said first etching step, said resist  
35 pattern is etched to remove said second portion in  
36 said resist etching step, at least an uppermost  
37 film of said laminated films is etched and removed  
38 in said second etching step, and after said resist  
39 etching step, a contact hole formation step for a  
40 remaining films of said laminated films in said  
41 opening left is etched and removed to form a  
42 contact hole in said insulation layer reaching a  
43 surface of said first conductive film pattern.

44 3. The manufacturing method of an active matrix  
45 substrate according to claim 2, wherein said first  
46 conductive film pattern is a gate wiring including  
47 a gate electrode, and after said contact hole  
48 formation step, further comprising a lead wiring  
49 formation step for removing said resist pattern,  
50 depositing a third conductive film on said  
51 insulating, forming a wiring formation resist  
52 pattern on said third conductive film, etching and

53 removing said third conductive film together with  
54 upper films constituting said laminated films and  
55 locating higher than said semiconductor film by  
56 using said wiring formation resist pattern as a  
57 third etching mask to form source/drain electrodes  
58 consisting of said third conductive film and said  
59 upper films, and to form a lead wiring covering  
60 said contact hole.

1 4. The manufacturing method of an active matrix  
2 substrate according to claim 3, wherein any one of  
3 said source/drain electrodes is connected with said  
4 lead wiring of said third conductive film.

5 5. The manufacturing method of an active matrix  
6 substrate according to claim 3, wherein said lead  
7 wiring constitutes a terminal electrode to be  
8 connected with an external device in periphery of  
9 said insulating substrate.

10 6. The manufacturing method of an active matrix  
11 substrate according to claim 1, wherein said  
12 thinner portion of said resist pattern is etched by  
13 anisotropic etching using active species that are  
14 generated by plasma-enhancing a halogen compound  
15 gas and an oxygen gas.

16 7. The manufacturing method of an active matrix  
17 substrate according to claim 1, wherein said resist  
18 pattern has a plurality of film thicknesses and is  
19 formed by exposing a resist film once through a  
20 photomask with a mask pattern consisting of a light

21 shielding portion, a light half-transmitting  
22 portion and a light transmitting portion, and  
23 developing said resist film.

24 8. The manufacturing method of an active matrix  
25 substrate according to claim 7, wherein said resist  
26 film consists of two resist films laminated having  
27 different exposure sensitivity from each other.

28 9. The manufacturing method of an active matrix  
29 substrate according to claim 1, wherein said resist  
30 pattern has a plurality of film thicknesses which  
31 is formed by exposing sequentially a resist film by  
32 using a photomask selected from photomasks with  
33 different mask patterns from each other for each  
34 exposure, and developing said resist film.

35 10. The manufacturing method of an active matrix  
36 substrate according to claim 9, wherein said each  
37 exposure is executed by using different amount of  
38 exposure light from each other.

39 11. The manufacturing method of an active matrix  
40 substrate according to claim 9, wherein said resist  
41 film consists of two resist films laminated having  
42 different exposure sensitivity from each other.